



RVAC
Regional Visualization
and Analytics Centers

North-East Visualization
and Analytics Center

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North-East Visualization and Analytics Center (NEVAC)

VAST Grand Challenge Award: Data Integration Visualization and Collaboration in the VAST 2008 Challenge

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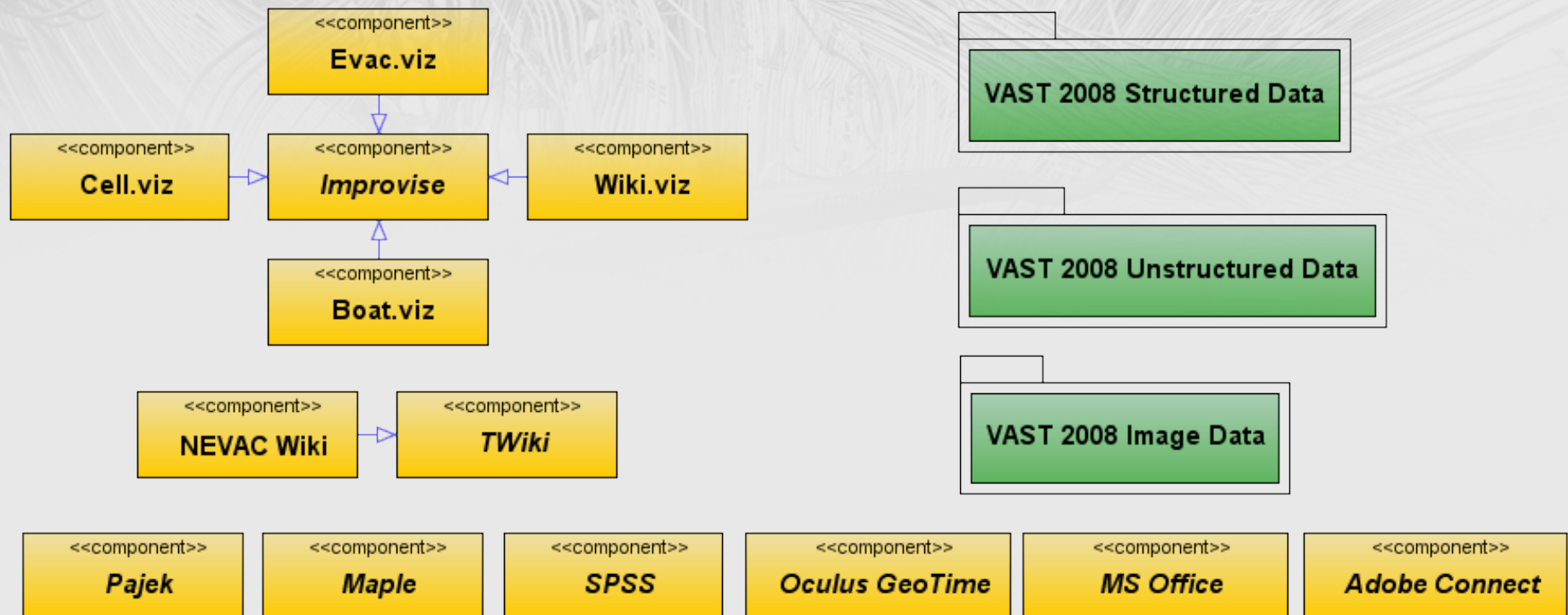
October 23, 2008

NEVAC VAST Challenge Team Members



- Don Pellegrino, Drexel University
- Chi-Chun Pan, The Pennsylvania State University
- Anthony Robinson, The Pennsylvania State University
- Michael Stryker, The Pennsylvania State University
- Junyan Luo, The Pennsylvania State University
- Chris Weaver, The Pennsylvania State University
- Prasenjit Mitra, The Pennsylvania State University
- Chaomei Chen, Drexel University
- Ian Turton, The Pennsylvania State University
- Alan MacEachren, The Pennsylvania State University

Tools Used



Mini Challenge 1: Wiki Editors

Wiki.viz

File Edit Base Meta Grab Misc Help

Wiki Edit Relationship Graph

Nodes

☐ Edit.Date
☐ Edit.Time
☒ Edit.Author
☐ Revision.Author
☐ Revision.Type
☐ Word.Word
☐ Word.Part

Edges

E.D ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
E.T ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
E.A ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐
R.A ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
R.T ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
W.W ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

W.P

Packs

E.D ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ E.T ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ E.A ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ R.A ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ R.T ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☒ ☐ ☐ W.W ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ W.P ☐ ☐ ☐ ☐

Revision Authors

Key	Set
139.55.50.x	1
172.203.243.x	1
195.113.65.x	1
201.226.51.x	1
204.52.215.x	1
209.155.27.x	1
204.52.215.x	1
66.175.135.x	1
67.55.3.x	1
68.161.222.x	1
69.14.85.x	1
71.59.210.x	1
74.120.3.x	1
74.130.152.x	1
75.179.21.x	2
84.158.202.x	1
86.135.211.x	1
86.151.194.x	1
Alejo	1
Alejandro.sanchez	1

Words

Key	Set
nurse	1
obsessed	1
october	1
page	26
paraiso	28
paraisoser	3
park	1
peni	1
persistent	1
png	1
pope	4
pov	1
power	1
pp-semi-vandalism	1
practitioner	1
protected	3
protection	5
redirect	2
religion	4
replaced	21
ridiculous	1
semi	2
semi-protection	4

Revision Types

Key	Set
revert	121
revertto	70
undo	86

Parts of Speech

Key	Set
CC	2
CD	5
DT	7
FW	3
IN	39
JJ	465
JJR	18
JJS	2
MD	11
NN	1515

Cross Filtering

E.C ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☒ E.D ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☒ E.T ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☒ ☐ E.A ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ R.A ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ R.T ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☒ ☐ ☐ ☐ W.W ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ W.P ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Dates (Calendar)

Cycle Length: 14 days | Cycle Phase: 0 | Cell Size: 24 | Options: ☒ Count Events ☒ Outline Dates ☒ Fill Seasons ☒ Outline Months

(None) 1 2 3 4 5 6 7 8 9 10 11 12 13 14

Date Range	Count
2006.08.11 - 2006.08.24	3
2006.08.25 - 2006.09.07	25
2006.09.08 - 2006.09.21	1
2006.09.22 - 2006.10.05	1
2006.10.06 - 2006.10.19	8
2006.10.20 - 2006.11.02	1
2006.11.03 - 2006.11.16	1
2006.11.17 - 2006.11.30	1
2006.12.01 - 2006.12.14	7
2006.12.15 - 2006.12.28	1
2006.12.29 - 2007.01.11	1
2007.01.12 - 2007.01.25	45

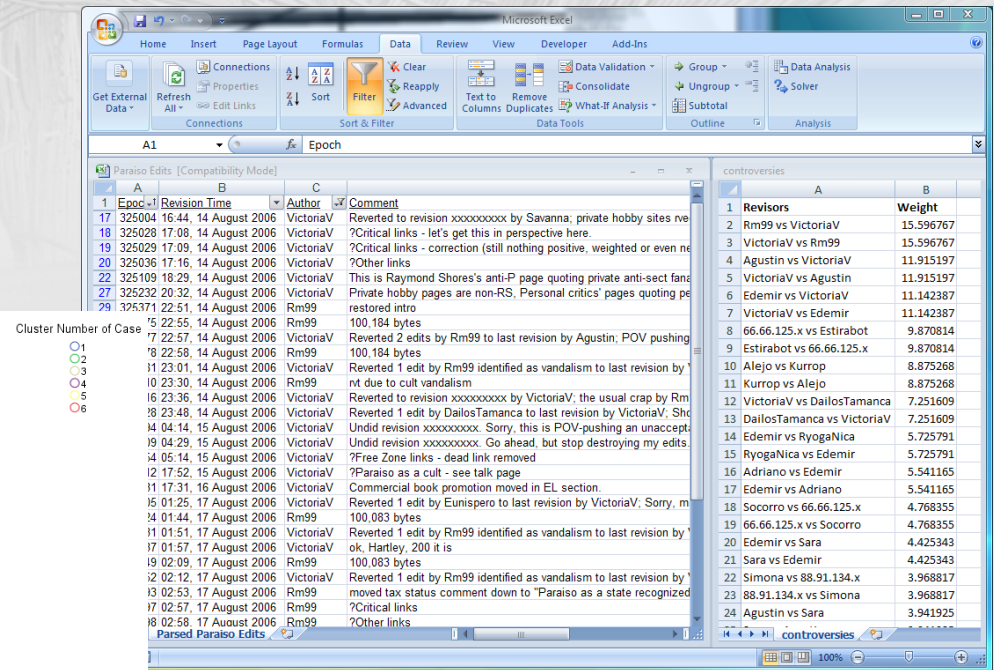
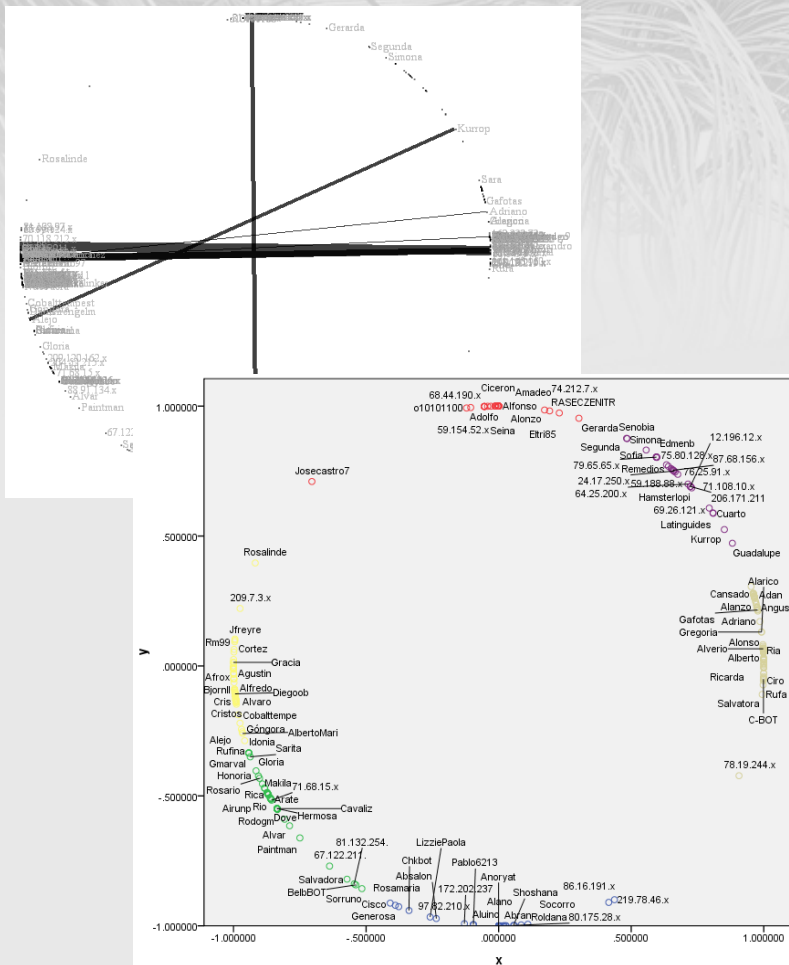
Time

Count: 50, 1000, 10000, 100000

Time of day (24hr): 00, 20

06 Aug 11 | 2006 Sep 05 | 2006 Sep 30 | 2006 Oct 25 | 2006 Nov 19 | 2006 Dec 14 | 2007 Jan 08

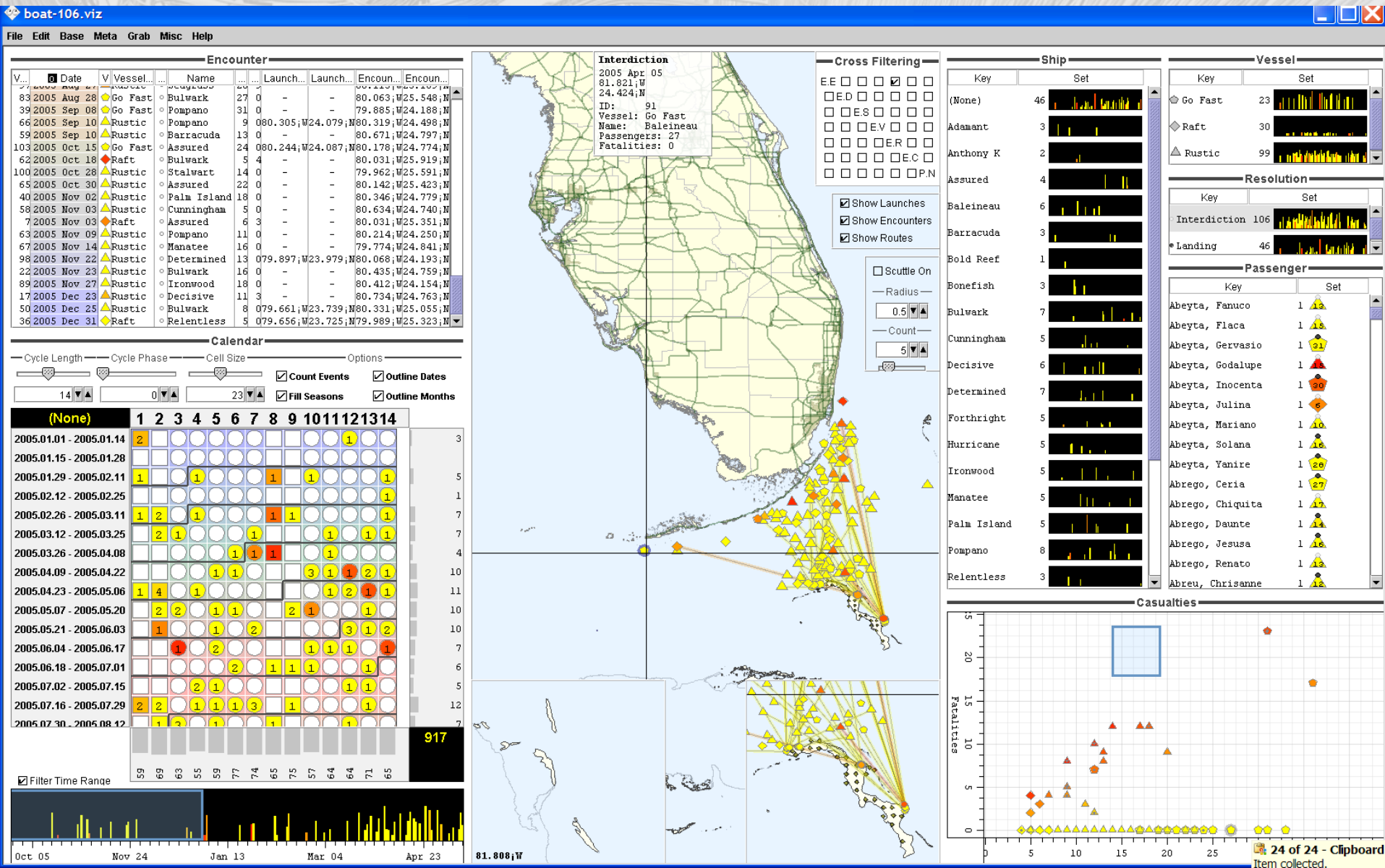
Mini Challenge 1: Wiki Editors Maple*, SPSS, Excel



* U. Brandes and J. Lerner, "Visual analysis of controversy in user-generated encyclopedias," Inf Visualization, vol. 7, pp. 34-48, 2008.

Mini Challenge 2: Migrant Boats

Boat.viz

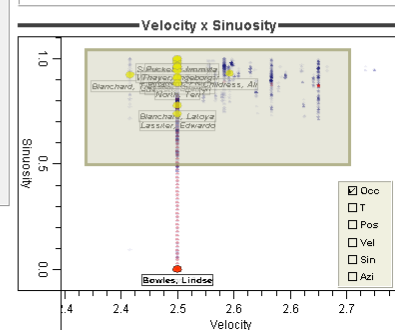
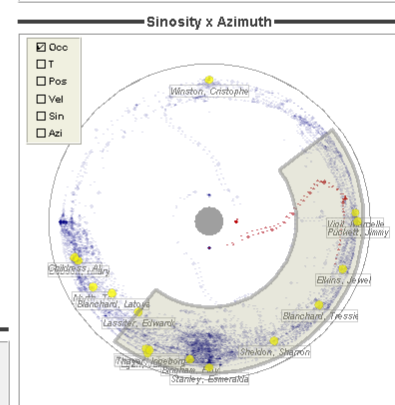
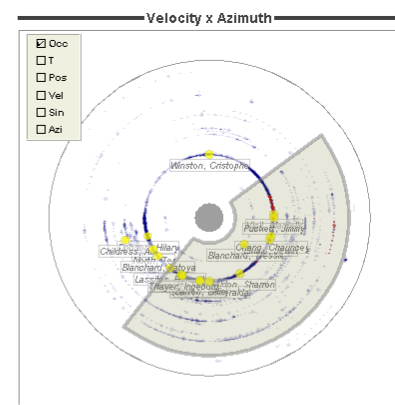
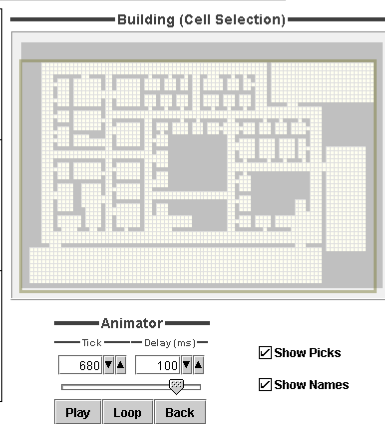
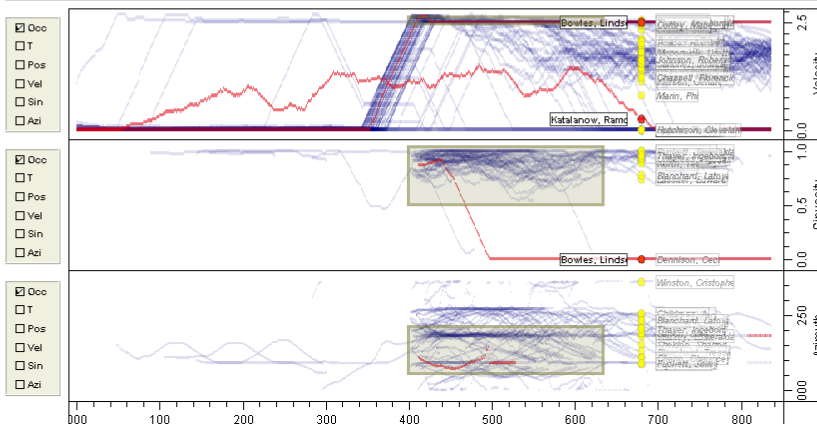
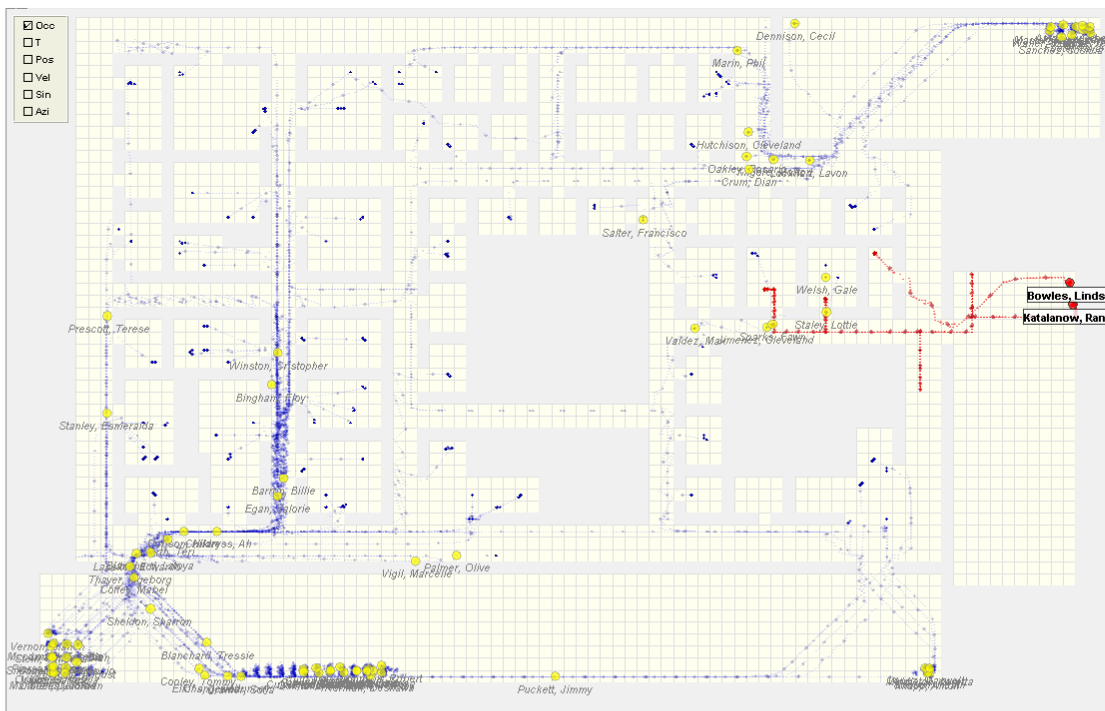


Mini Challenge 4: Evacuation Traces

Evac.viz

File Edit Base Meta Grab Misc Help

Occupants					
<input checked="" type="checkbox"/> Occ	<input type="checkbox"/> T	<input type="checkbox"/> Pos	<input type="checkbox"/> Vel	<input type="checkbox"/> Sin	<input type="checkbox"/> Azi
ID	Name	Vel	Sin	Azi	Move
0	Allen, Tommy	1.38	0	0	slow
1	Amos, Evie	1.79	0	0	slow
2	Barron, Billie	2.50	0	180	stop
3	Blanchard, Floy	2.50	0.94	180	stop
4	Blanchard, Latoya	2.50	0.78	235	stop
5	Blanchard, Tressie	2.46	0.92	128	slow
6	Bowles, Lindsey	2.50	0.00	0	stop
7	Bridges, August	2.04	0	0	slow
8	Chana, Chauncey	2.50	0	107	stop
9	Chaspeil, Florencia	1.21	0	0	slow
10	Childress, Ali	2.55	0.93	255	fast
11	Coffey, Mabel	2.46	0	0	slow
12	Cooley, Tommy	2.42	0	0	slow
13	Cox, Dale	1.79	0	0	slow
14	Cramer, Sofia	2.33	0	0	slow
15	Crum, Dian	0.00	0	0	stop
16	Cullen, Delois	1.96	0	0	slow
17	Cullen, Ester	1.79	0	0	slow
18	Culver, Jerome	1.54	0	0	slow
19	Dennis, Cecil	2.50	0.00	0	stop
20	Dobson, Hilary	2.50	0.91	255	stop
21	Egan, Valorie	2.50	0.99	205	stop
22	Elkins, Jewell	2.50	0.95	110	stop
23	Footo, Tova	1.58	0	0	slow
24	Gibbs, Maudie	1.59	0	0	slow
25	Graham, Karissa	1.82	0	0	slow
26	Green, Velma	1.96	0	0	slow
27	Greer, Kyia	1.50	0	0	slow
28	Griqas, Tera	1.63	0	0	slow
29	Guidry, Mi	1.79	0	0	slow
30	Hampton, Jack	1.50	0	0	slow
31	Heam, Adam	1.42	0	0	slow
32	Hood, Ulisses	0.00	0	0	stop
33	Hutchison, Cleaveland	0.00	0	0	stop
34	Ivey, Jesus	1.42	0	0	slow
35	Jimenez, Cleyda	0.00	0	0	stop
36	Johnson, Robert	1.63	0	0	slow
37	Katalanow, Ramon	0.25	0	0	slow
38	Kenney, Dian	2.12	0	0	slow
39	Kilgore, Morton	0.00	0	0	stop
40	Knapo, Anton	1.50	0	0	slow
41	Kramer, Emogene	1.75	0	0	slow
42	Landers, Antony	1.98	0	0	slow
43	Lassiter, Eduardo	2.50	0.74	218	stop
44	Lawson, Kathrine	1.25	0	0	slow
45	Lockhart, Lavon	0.00	0	0	stop
46	Lopez, Maxwell	1.79	0	0	slow
47	Lovell, Fabiola	1.79	0	0	slow
48	Mansfield, Jackie	0.00	0	0	stop
49	Marin, Phil	0.79	0	0	slow
50	Masters, Aahes	1.46	0	0	slow
51	McCormick, Lizette	1.79	0	0	slow
52	Mcneal, Jordan	1.67	0	0	slow
53	Middleton, Loretta	1.42	0	0	slow
54	Norman, Deshawn	1.42	0	0	slow
55	North, Teri	2.50	0.88	240	stop
56	Oakley, Rosario	0.00	0	0	stop
57	Osborne, Hope	1.42	0	0	slow
58	Palmer, Olive	1.79	0	0	slow
59	Pierson, Genaro	1.12	0	0	slow
60	Prescott, Terese	2.50	0.96	200	stop
61	Puckett, Jimmy	2.50	1.00	090	stop
62	Quintana, Fredric	2.09	0	0	slow
63	Salter, Francisco	0.00	0	0	stop
64	Sanchez, Joshua	1.54	0	0	slow
65	Sheldon, Sharron	2.50	0.91	152	stop
66	Simons, Thaddeus	1.67	0	0	slow
67	Snow, Abel	1.82	0	0	slow
68	Sparks, Fawn	0.00	0	0	stop
69	Staley, Lottie	0.00	0	0	stop
70	Stanley, Esmeralda	2.50	1.00	180	stop
71	Stein, Julianna	1.71	0	0	slow
72	Stinson, Heath	0.00	0	0	stop
73	Stovall, Dale	1.88	0	0	slow
74	Thayer, Ingeborg	2.50	0.96	205	stop
75	Valdez, Max	0.00	0	0	stop
76	Vernon, Blanch	1.83	0	0	slow
77	Vidro, Carlos	1.49	0	0	slow
78	Vigil, Marcelle	2.50	0.98	087	stop
79	Waller, Melonie	1.67	0	0	slow
80	Welsh, Gale	0.00	0	0	stop
81	Winston, Christopher	2.50	0.96	360	stop



Mini Challenge 4: Evacuation Traces

Evac.viz



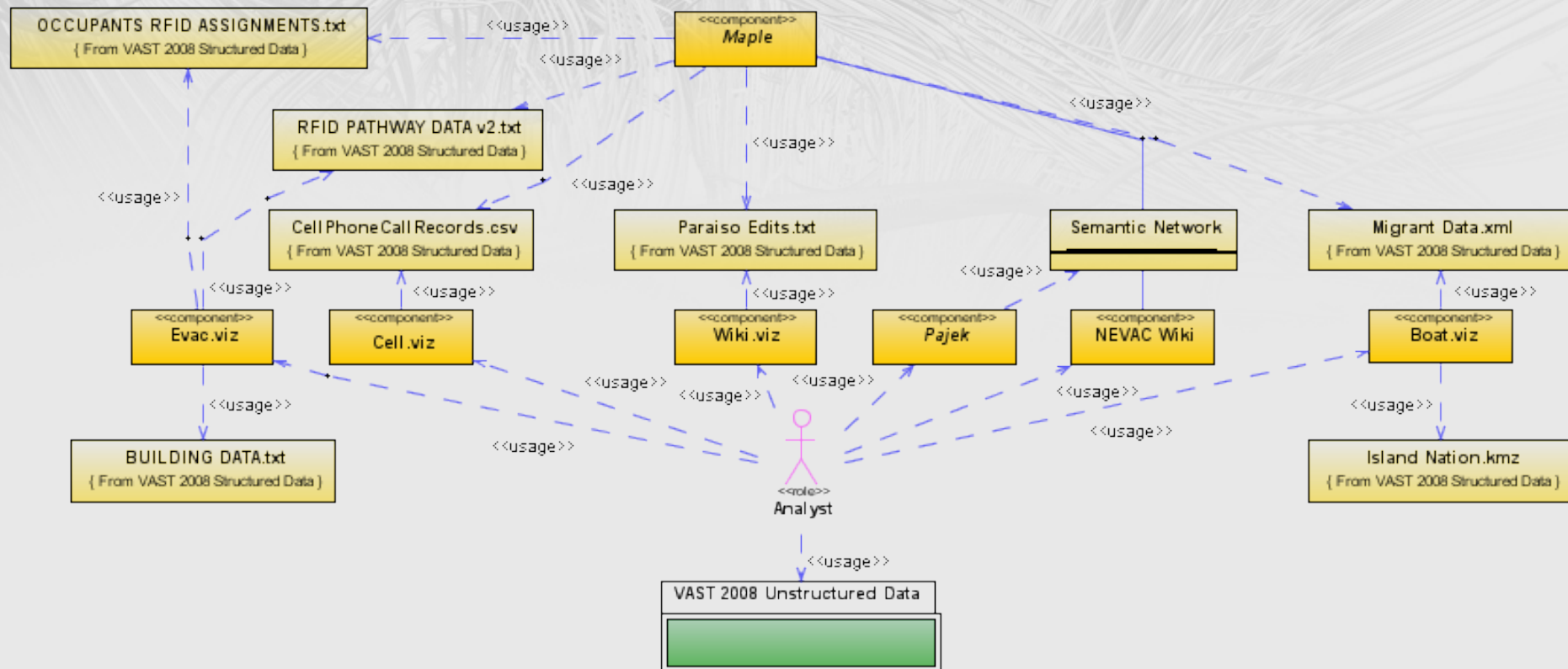
Video of Evac.viz

Collaboration



- Individual team members used the Improve based tools to explore the data and develop hypotheses.
- The team used a Wiki to support collaboration. This was done purposefully to mimic Intellipedia. Findings from the explorations were recorded in the Wiki and discussed with other team members during a bi-weekly conference call.
- The specific questions posed by the mini-challenges were used to drive the investigation.

System Interactions – Analyst Centric

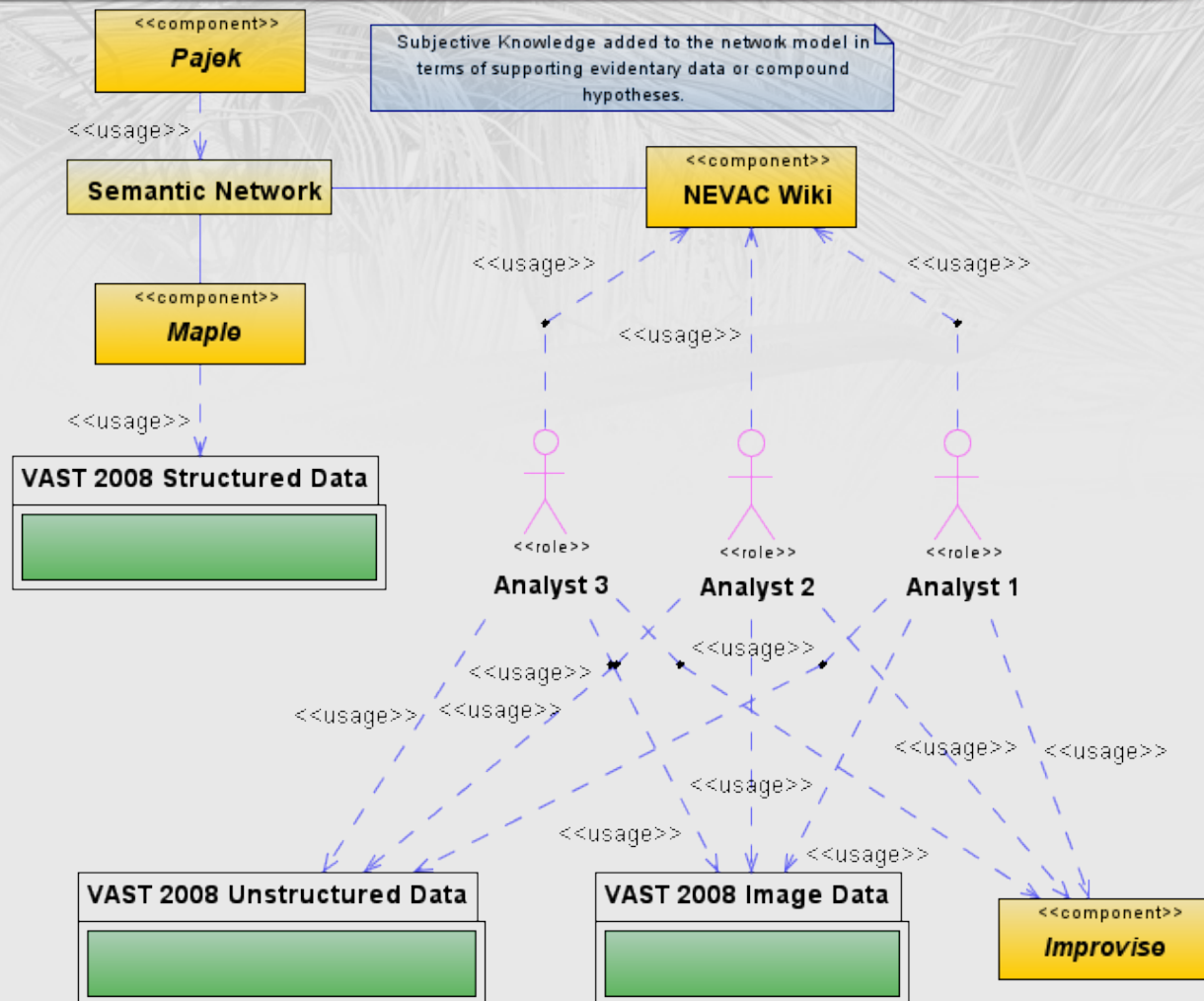


What Questions Should We Ask?

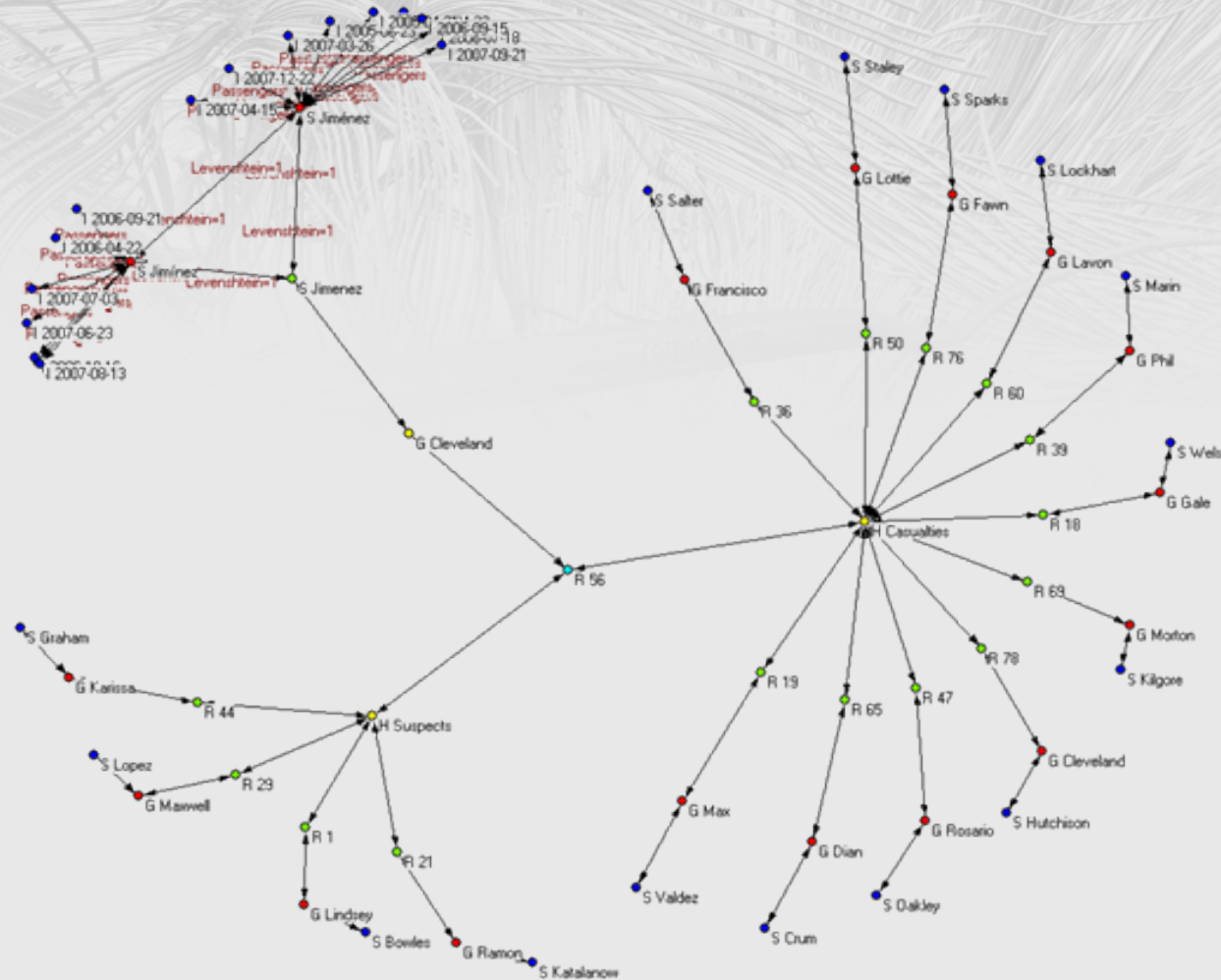


- From the Answer Form:
(<http://www.cs.umd.edu/hcil/VASTchallenge08/ANSWERFORMtemplate/grand/index.htm>)
 - *“Grand-1. Based on ALL the data available (i.e. using the data from all 4 mini - challenges) what is the social network of the Paraiso movement at the end of the time period?”*
 - *“Grand-2. What name or names can be associated with individual activities?”*
 - *“Grand 3. What is the geographical range of the Paraiso Movement and how it changes over time.”*
 - *“Grand-4. How do the major beliefs of the Paraiso movement affect their activities? “*
- The process of integrating the data of multiple team members working on specific mini-challenge provided insights that would tie the data together.

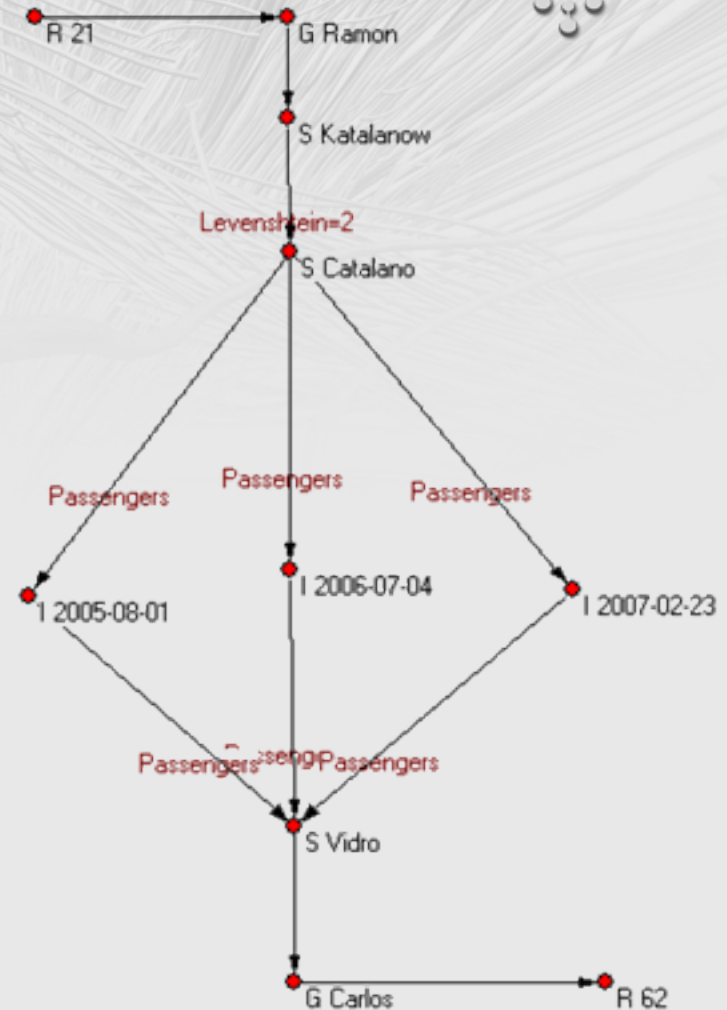
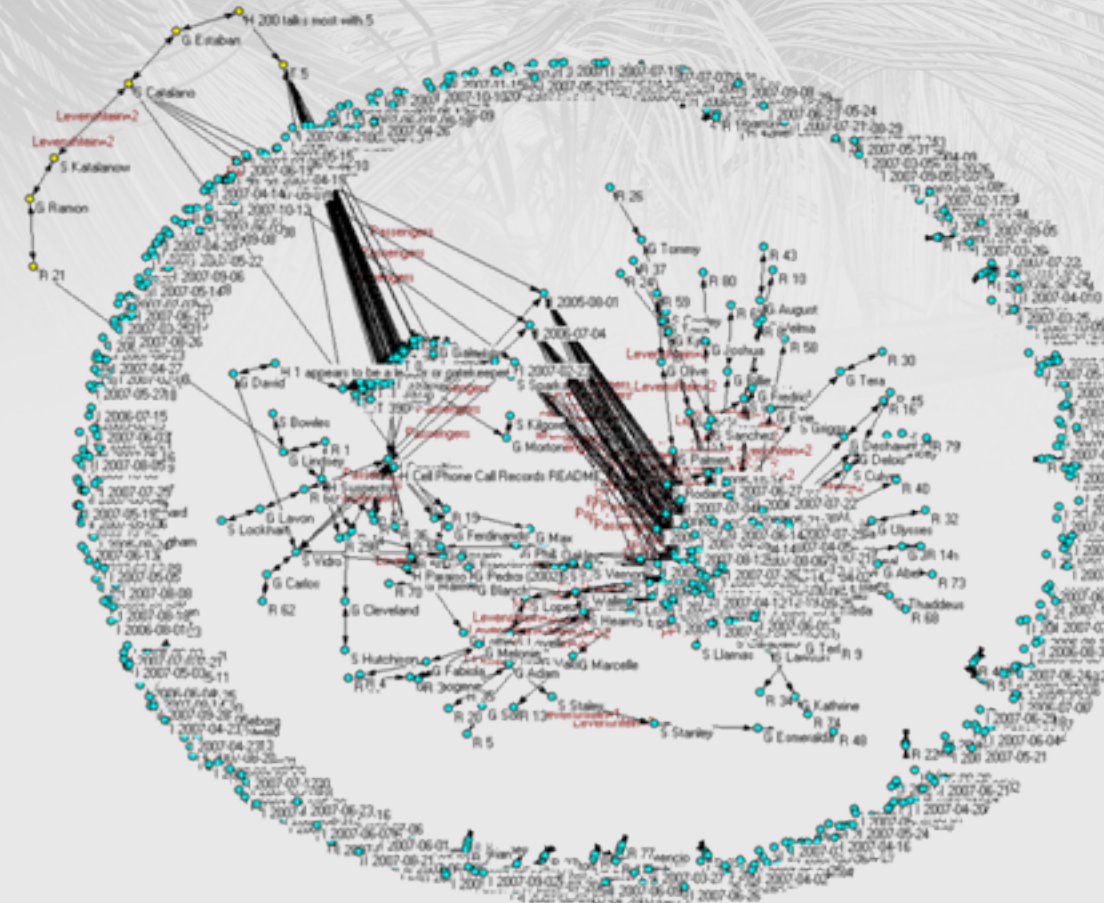
Associative Network Model to Integrate Structured Data with Subjective Knowledge of Analysts



Hypotheses Modeled with Supporting Data



VAST08





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